



# Copper Pipe Alcohol Lamp

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## TOOLS:

- [Butane torch \(1\)](#)  
*or propane torch*
- [Small Metal Lathe \(1\)](#)
- [Solder \(1\)](#)
- [Solder Flux \(1\)](#)
- [Tap and die set \(1\)](#)
- [Tube bender \(1\)](#)  
*optional*



## PARTS:

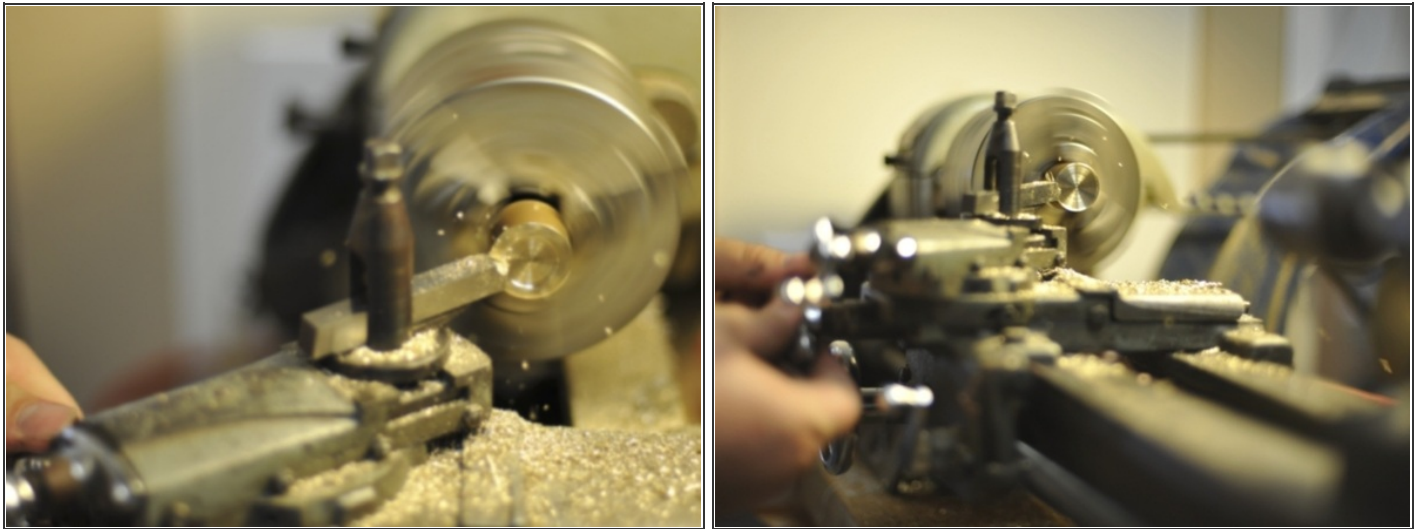
- [Brass round stock \(1\)](#)
- [Straight copper pipe \(1\)](#)
- [Flexible copper tubing \(1\)](#)
- [Rubber O-ring \(1\)](#)
- [Short length of cotton string \(1\)](#)  
*that fits snugly inside 1/4" flexible copper tubing*
- [Can of alcohol \(1\)](#)  
*or kerosene, for fuel*

## SUMMARY

The [Pop-Pop Steamboat](#) in [MAKE Volume 28](#) calls for using small tea candles for the engine's heat source, but I found that it didn't work very well. So I decided to make this small alcohol-burning lamp instead, and it significantly improved its performance.

In this project I will go over how to turn down two brass end-caps on a small lathe and then solder them onto a short length of copper pipe to make an alcohol-burning lamp to fuel your Pop-Pop boat. This project is for those who have basic skills with a lathe and metalworking. I will not go over dimensions, so you can come up with your own design. Have fun!

## Step 1 — Copper Pipe Alcohol Lamp



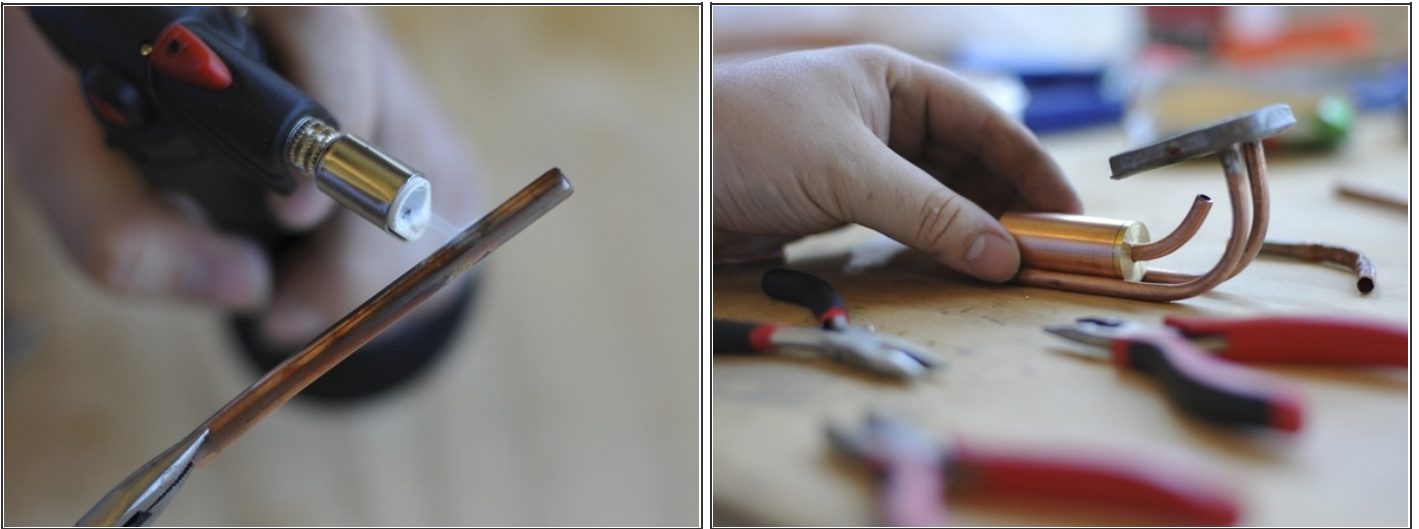
- Using the lathe, turn down the brass round stock to create two end caps that fit in snugly in the copper pipe.

## Step 2



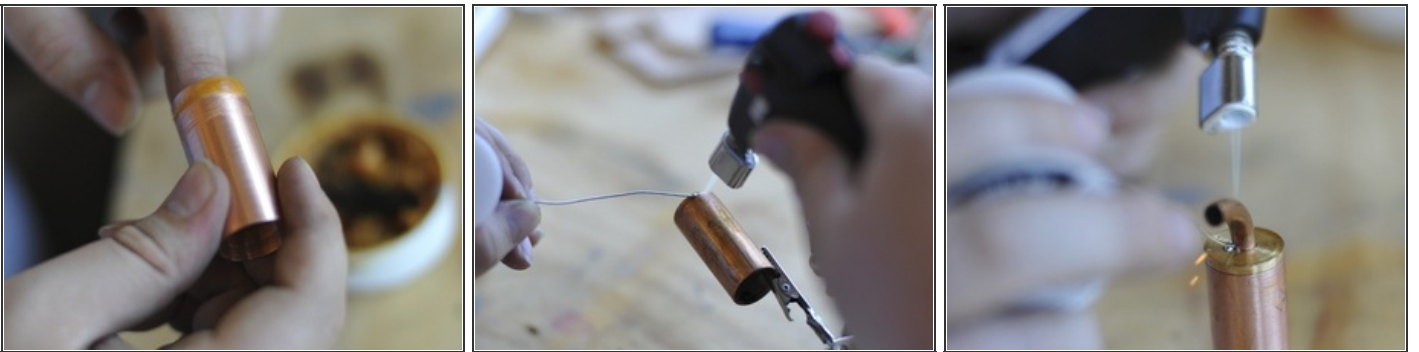
- One cap should have a 1/4" hole drilled through it for the copper tubing. The other cap will have a threaded hole for a brass threaded plug that you turn down. Make sure the threads match.
- Put the O-ring on the brass plug.

### Step 3



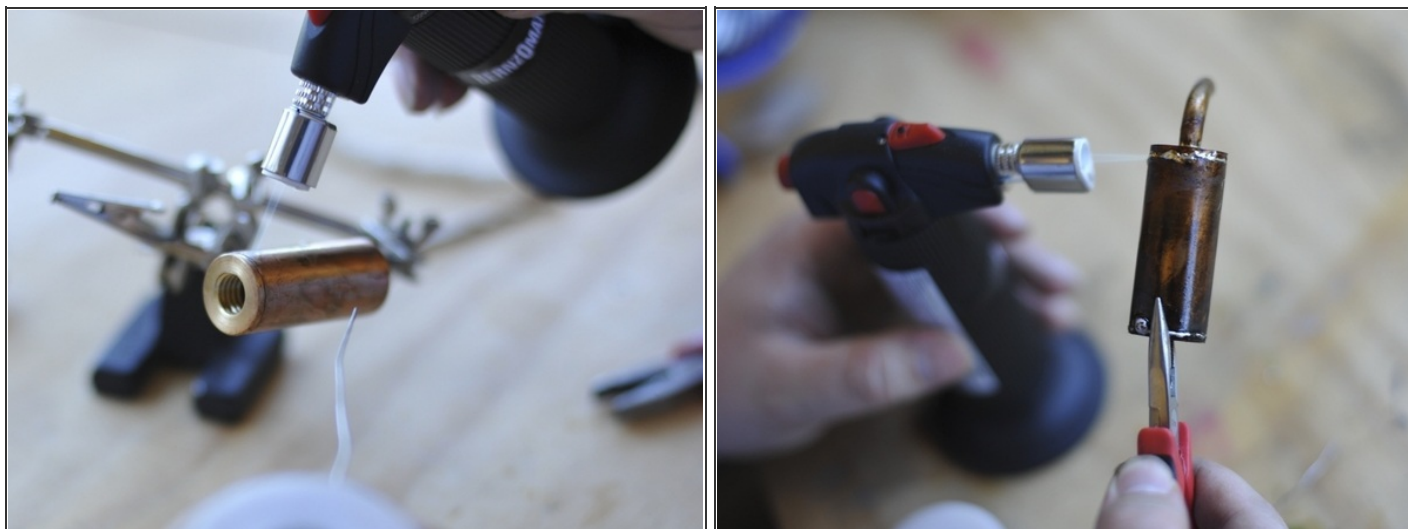
- Use the torch to soften the copper.
- Then use the pliers to bend it into the correct shape, being careful not to crush the pipe.
- Test fit it under the pop-pop boat engine to make sure it fits.

### Step 4



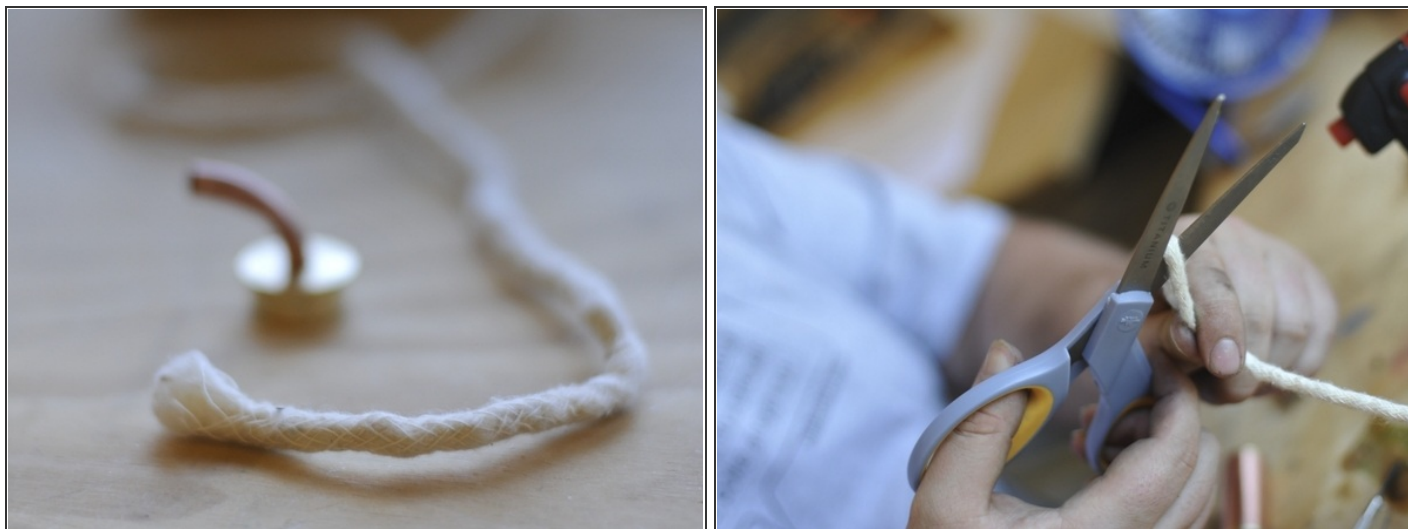
- Make sure to apply plenty of flux to the inside of the pipe, then solder the non-threaded cap on.
- After that, solder the bent copper tubing into the cap, making sure not to get any solder inside the tubing.

## Step 5



- Next, solder the threaded cap onto the copper pipe. Don't forget the flux.
- After that, clean up any holes or rough solder with the torch.

## Step 6



- Cut a short length of cotton yarn and stuff it into the bent copper tubing.
- I used a stiff metal wire to help get it all the way in. You want a little of the yarn sticking inside the copper tube; this will allow it to soak up the fuel.



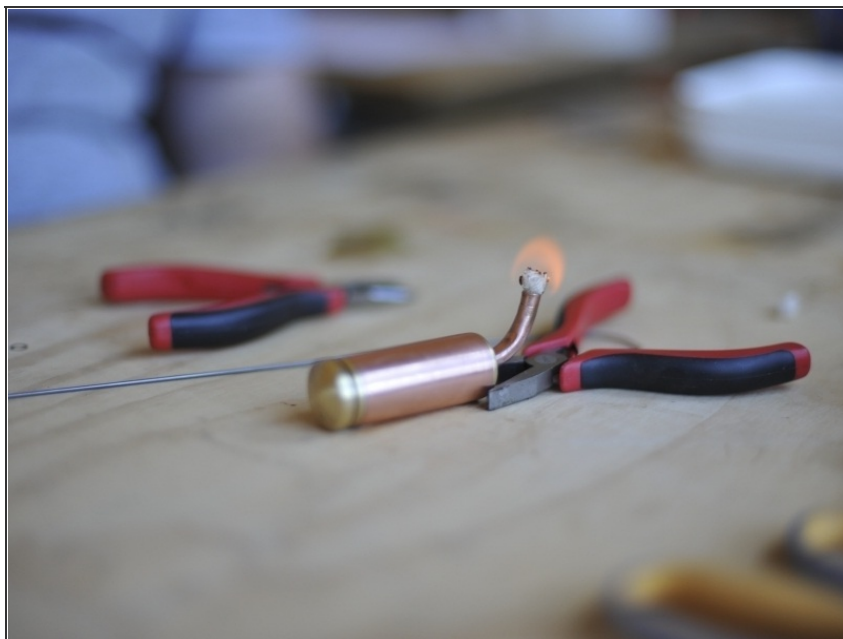


## Step 7



- Use a wire wheel to roughly clean the burner.
- After that, polish it up on the lathe with fine-grit sandpaper.

## Step 8



- To run it, just fill it up with fuel, screw on the cap, and light the wick. That's it – you're done!

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